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PIP-II Controls Quarterly Report

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PIP-II Friday Meeting

July 31, 2015

Primary Project Goals Status

Primary Project Goals	Status (Complete or Projected Date)
Support Project X Injector Experiment (PXIE) commissioning	Controls for the LEBT are operational. Controls for the RFQ and MEBT are on track to be ready when needed for RFQ commissioning later this year.
Develop strategy for PIP-II controls and Machine Protection System (MPS)	Task is starting late, limited progress so far this year.
MPS for PXIE commissioning	Core MPS installed at PXIE. Work remains on instrumentation.

- Most work has been on PXIE, this is in good shape
- Machine Projection work is underway at PXIE, building on experience at ASTA/FAST
- Limited progress on general PIP-II controls, timing, and machine projection strategy. Should become more active once India collaboration established.

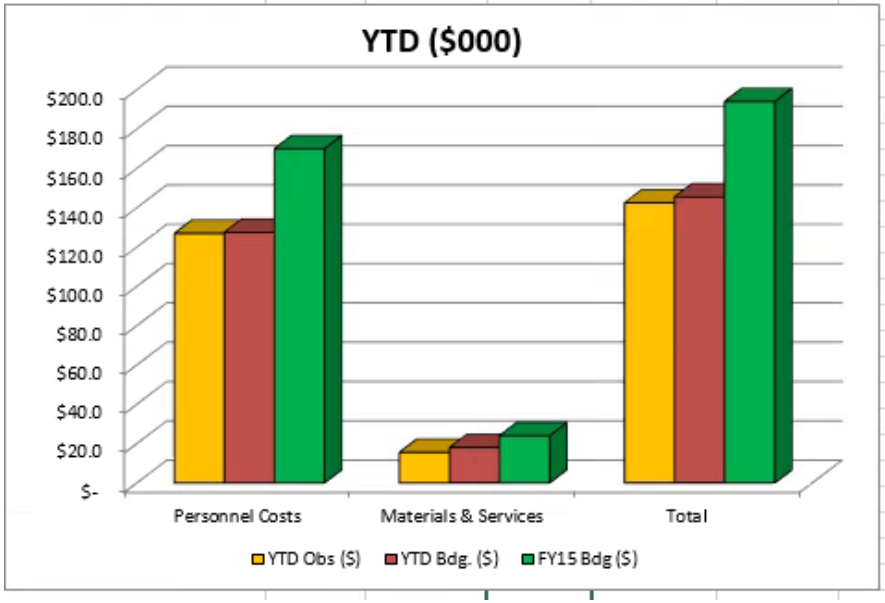
Accomplishments/Status – PXIE Controls

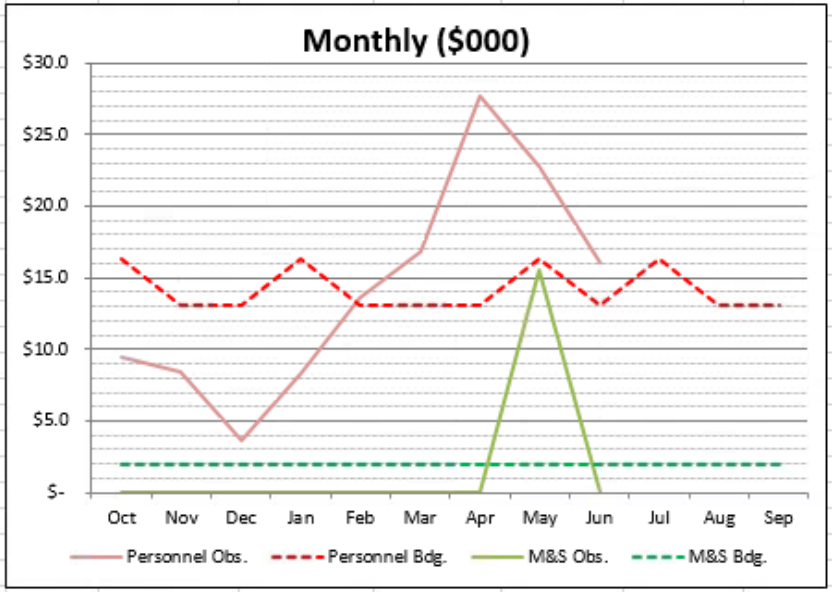
- Controls for the LEBT have been operational and used for extensive beam operation at PXIE
  - Support for beam measurements including application software
- Motion control for LEBT, MEBT prototype scrapers, MEBT buncher cavity tuner, and fast Faraday cup installed
- Beam stop added and is operational
- One-shot module built for single pulses phased with RF
- Controls for corrector and trim supplies installed
- Finite State Machines created for beam current, solenoid regulation, and machine protection system
- Work on water system for RFQ resonance control underway

Accomplishments/Status – Machine Protection

- The core MPS for PXIE was installed and a basic beam test performed in early July
  - Provides a permit to the chopper based on scraper loss thresholds
  - Monitors beam stop to turn of HV to the source in case of vacuum issues or state of the beam stop
  - Inputs may be masked
- Core system work estimated to be about 40% complete
- Dedicated MPS instrumentation about 10% complete. Development work on low energy (2.1 MeV) diamond loss monitor underway
- PXIE instrumentation interface work about 10% complete – depends on requirements and instrumentation status

Budget





Budget is fairly modest, have spent $15.6K on M&S, expect another $4K

Labor currently on track, but see following

Forecast

Consolidated Cost/Hours/FTE Forecast for Control						
Cost Category	***YTD Obligation***	***Rest of Year F/C***	***Total FY15 F/C***	***FY15 Budget***	***Under/ (Over) Bdg. ($)***	***Under/ (Over) Bdg. (%)***
Staff (FTE) Cost	$ 126.9	$ 64.9	$ 191.8	$ 170.0	**$ (21.9)**	-12.9%
M&S Cost	$ 15.6	$ 4.0	$ 19.6	$ 24.0	$ 4.4	18.5%
Total	***$ 142.5***	***$ 68.9***	***$ 211.4***	***$ 194.0***	**$ (17.4)**	***-9.0%***

Remaining M&S is mostly for MPS diamond sensors

Remaining labor mostly for water system for RFQ resonance control, total may overrun slightly